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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,719	08/09/2002	Christine Kay Lambert	201-0632	4228
28395	7590	12/30/2003	EXAMINER	
BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			NGUYEN, TU MINH	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/064,719

Applicant(s)
Lambert et al.

Examiner
Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 14, 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) 2, 10, and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-9, 11-17, 19, and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Aug 9, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3, 6 6) ☐ Other:

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DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of the species of Figure 2 in Paper No. 5 is acknowledged. Claims 1, 3-9, 11-17, 19, and 20 are readable thereon and will be examined in their full merit. Claims 2, 10, and 11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

2. The drawings are objected to because

- Numeral "10" introduced in paragraph 0016 is not shown in Figure 1.
- Numeral "110" introduced in paragraph 0028 is not shown in Figure 2.

Correction is required.

Claim Objections

3. Claims 5 and 13 are objected to because the phrase "capable of" renders the claims indefinite. Therefore, "capable of" should read --adapted for-- . Appropriate correction is required.

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Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 4-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wissler et al. (U.S. Patent 6,223,526).

Re claim 1, as shown in Figure 2, Wissler et al. disclose a method for operating an exhaust gas purification system, the method comprising:

- directing heated fuel from a high pressure fuel injection system (F) to a reductant source (R);

- heating frozen reductant within the reductant source with thermal energy transferred from the heated fuel (see lines 13-23 of column 2 and lines 28-35 of column 3); and

- supplying the reductant to an exhaust gas pipe in front of a catalyst for purification of exhaust gas (lines 26-29 of column 1).

Re claim 4, in the method of Wissler et al., the high pressure fuel injection system (F) is a common rail fuel injection system.

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Re claim 5, in the method of Wissler et al., a reductant tank (8) to supply reductant to the reductant source is positioned in a vehicle in a location adapted for being exposed to heat generated during vehicle operation and protected from direct exposure to ambient temperatures.

Re claim 6, in the method of Wissler et al., the reductant tank (8) is located within a fuel tank (6).

Re claim 7, in the method of Wissler et al., the reductant is an aqueous urea solution (lines 24-25 of column 1).

Re claim 8, as depicted in Figure 3, the method of Wissler et al. further comprises system components containing the reductant, wherein the components are made from an elastic material with an expansion coefficient higher than the expansion coefficient of the reductant to prevent damage to the components when the reductant freezes (see lines 43-49 of column 3).

6. Claims 1, 3-5, and 7 are rejected under 35 U.S.C. 102(a) as being anticipated by German Patent Application DE 20119513 (see the equivalent U.S. Patent Application 2003/0101715).

Re claim 1, as depicted in the Figure, DE 20119513 discloses a method for operating an exhaust gas purification system, the method comprising:

- directing heated fuel from a high pressure fuel injection system (4, 12) to a reductant source (5);
- heating frozen reductant within the reductant source (5) with thermal energy transferred from the heated fuel; and

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- supplying the reductant to an exhaust gas pipe (8) in front of a catalyst (9) for purification of exhaust gas.

Re claim 3, in the method of DE 20119513, the reductant source is a reductant supply line (5) contained within a high pressure fuel injection system return line (12) (also see lines 14-16 of paragraph 0024 in U.S. Patent Application 2003/0101715).

Re claim 4, in the method of DE 20119513, the high pressure fuel injection system (4, 12) is a common rail fuel injection system.

Re claim 5, in the method of DE 20119513, a reductant tank (3) to supply reductant to the reductant source (5) is positioned in a vehicle in a location capable of being exposed to heat generated during vehicle operation and protected from direct exposure to ambient temperatures.

Re claim 7, in the method of DE 20119513, the reductant is an aqueous urea solution (see paragraph 0026 of U.S. Patent Application 2003/0101715).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 9, 11-13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 20119513 as applied to claim 1 above, in view of official notice.

Re claim 9, the method of DE 20119513 discloses a system for use with the method, the system comprising:

- a source of fuel (4);
- a first source of liquid reductant (3);
- an exhaust pipe (8) for discharging exhaust gas from the vehicle;
- a second source of liquid reductant (5), the second source (5) being disposed between the first source (3) of liquid reductant and the exhaust pipe (8);
- a high pressure fuel injection system (12) disposed between the fuel source (4) and the second liquid reductant source (5);
- a second conduit fluidly (12) connecting the high pressure injection system with the fuel source; and
- a third conduit fluidly (5) connecting the first liquid reductant source (3) with the exhaust pipe (8).

DE 20119513, however, fails to disclose that the system further comprises a first conduit fluidly connecting the fuel source with the high pressure fuel injection system, a first high pressure fuel pump to deliver fuel from the fuel source through the high pressure fuel injection system, and a second pump to deliver liquid reductant from the second liquid reductant source to the exhaust pipe.

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It is well known to those with ordinary skill in the art that the system in DE 20119513 further comprises a first conduit fluidly connecting the fuel source (4) with the high pressure fuel injection system to supply fuel to the engine, a first high pressure fuel pump to deliver fuel from the fuel source (4) through the high pressure fuel injection system, past the second liquid reductant source (5), returning to the fuel source (4), whereby compression of the fuel in the high pressure fuel injection system heats the fuel, and a second pump to deliver liquid reductant from the second liquid reductant source (5) to the exhaust pipe (8). Therefore, such disclosure by DE 20119513 is notoriously well known in the art so as to be proper for official notice.

Re claim 11, in the system of DE 20119513, the second liquid reductant source is a reductant supply line (5) contained within a high pressure fuel injection system return line (12) (also see lines 14-16 of paragraph 0024 in U.S. Patent Application 2003/0101715).

Re claim 12, in the system of DE 20119513, the high pressure fuel injection system (4, 12) is a common rail fuel injection system.

Re claim 13, the system of DE 20119513 further comprises a reductant tank (3) containing the source of liquid reductant wherein the reductant tank is positioned in a vehicle in a location capable of being exposed to heat generated during vehicle operation and protected from direct exposure to ambient temperatures.

Re claim 15, in the system of DE 20119513, the reductant is an aqueous urea solution (see paragraph 0026 of U.S. Patent Application 2003/0101715).

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9. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 20119513 in view of official notice as applied to claim 9 above, and further in view of Wissler et al.

Re claim 14, the system of DE 20119513 further comprises a fuel tank (4) containing the source of fuel and a reductant tank (3) containing the source of liquid reductant. DE 20119513, however, fails to disclose that the reductant tank is located within the fuel tank.

As shown in Figure 2, Wissler et al. teach a dual compartment fuel storage tank comprising a reductant tank (8) located within the fuel tank (6) so that the heat transfer from the fuel tank keeps the liquid reductant in the reductant tank from freezing. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the fuel storage tank taught by Wissler et al. in the system of DE 20119513, since the use thereof would have ensured a flow of reductant to the exhaust system by keeping the reductant in the reductant tank (3) in a liquid form.

Re claim 16, as illustrated in Figure 3 and indicated on lines 43-49 of column 3 in Wissler et al., the modified system of DE 20119513 further comprises system components containing the reductant, wherein the components are made from an elastic material with an expansion coefficient higher than the expansion coefficient of the reductant to prevent damage to the components when the reductant freezes.

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10. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 20119513 in view of official notice.

Re claim 17, as shown in the Figure, DE 20119513 discloses a system for operating an exhaust gas purification system, the system comprising:

- a source of fuel (4);
- a first source of liquid reductant (3);
- an exhaust pipe (8) for discharging exhaust gas from the vehicle;
- a second source of liquid reductant (5), the second source (5) being disposed between the first source (3) of liquid reductant and the exhaust pipe (8);
- a high pressure fuel injection system (12) disposed between the fuel source (4) and the second liquid reductant source (5);
- a second conduit fluidly (12) connecting the high pressure injection system with the fuel source; and
- a third conduit fluidly (5) connecting the first liquid reductant source (3) with the exhaust pipe (8).

DE 20119513, however, fails to disclose that the system further comprises a first conduit fluidly connecting the fuel source with the high pressure fuel injection system, a first high pressure fuel pump to deliver fuel from the fuel source through the high pressure fuel injection system, and a second pump to deliver liquid reductant from the second liquid reductant source to the exhaust pipe.

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It is well known to those with ordinary skill in the art that the system in DE 20119513 further comprises a first conduit fluidly connecting the fuel source (4) with the high pressure fuel injection system to supply fuel to the engine, a first high pressure fuel pump to deliver fuel from the fuel source (4) through the high pressure fuel injection system, past the second liquid reductant source (5), returning to the fuel source (4), whereby compression of the fuel in the high pressure fuel injection system heats the fuel, and a second pump to deliver liquid reductant from the second liquid reductant source (5) to the exhaust pipe (8). Therefore, such disclosure by DE 20119513 is notoriously well known in the art so as to be proper for official notice.

Re claim 19, in the system of DE 20119513, the second liquid reductant source is a reductant supply line (5) contained within a high pressure fuel injection system return line (12) (also see lines 14-16 of paragraph 0024 in U.S. Patent Application 2003/0101715).

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 20119513 in view of official notice as applied to claim 17 above, and further in view of Wissler et al.

The system of DE 20119513 further comprises a fuel tank (4) containing the source of fuel and a reductant tank (3) containing the source of liquid reductant. DE 20119513, however, fails to disclose that the reductant tank is located within the fuel tank.

As shown in Figure 2, Wissler et al. teach a dual compartment fuel storage tank comprising a reductant tank (8) located within the fuel tank (6) so that the heat transfer from the fuel tank keeps the liquid reductant in the reductant tank from freezing. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have

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utilized the fuel storage tank taught by Wissler et al. in the system of DE 20119513, since the use thereof would have ensured a flow of reductant to the exhaust system by keeping the reductant in the reductant tank (3) in a liquid form.

Prior Art

12. The IDS (PTO-1449) filed on August 21, 2002 and November 19, 2003 have been considered. An initialized copy of each is attached hereto.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of seven patents: Perrin et al. (U.S. Patent 3,826,516), Noisier (U.S. Patent 4,941,999), Wissler et al. (U.S. Patent 6,209,313), Hofmann et al. (U.S. Patent 6,273,120), Peter-Hoblyn et al. (U.S. Patent 6,361,754), Marko et al. (U.S. Patent 6,387,336), and Weigl (U.S. Patent 6,519,935), each further discloses a state of the art.

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Communication

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

Tu M. Nguyen

TMN

Tu M. Nguyen

December 26, 2003

Patent Examiner

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